



# Databases and catalogues

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ESO & JMMC (VLTI) meeting  
2021-07-07

# Summary

- Databases:
  - OiDB
  - ObsPortal
  - Olbin publications (not presented)
- Catalogues
  - JSDC (already presented)
  - JMDC
  - BadCal



*O*  *DB*



# OiDB

- central access to optical interferometry data
- web & programmatic interface (Obscore/TAP)
- harvesting + user uploads
- worldwide interferometers

<https://oidb.jmmc.fr>

## Optical interferometry DataBase

18 FACILITIES	17 INSTRUMENTS	211 DATA-PIS	35 COLLECTIONS	10031 OIFITS	11234 GRANULES	382102 OBS. LOGS
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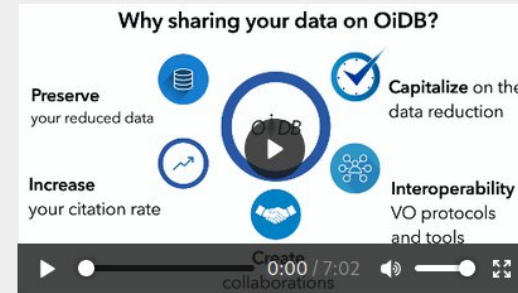
Enter target name or [visit the advanced form](#)

Welcome on the **second** version of the public release of OiDB !

OiDB aims to centralise the access to reduced optical interferometry data and observation logs obtained with a wide range of interferometers.

We hope that you will **find** data that is useful for your research, **share** yours and provide us with **feedback** to precise the future roadmap.

Look at the quick OiDB's introduction 7 min video !



If **OiDB** is useful to your research, please cite it in your publications by adding the following sentence in the acknowledgement section:

"This research has made use of the Jean-Marie Mariotti Center OiDB service available at <http://oidb.jmmc.fr> ."

# OiDB screenshots

L band observation of Kappa Tuc

Any Collection

L3 - Published calibrated OIFITS / suv

L band observation of Kappa Tuc

L3 - Published calibrated OIFITS / public

Large granulation cells on the surface of the giant star  $\pi$ 1 Gruis

AMBER and MIDI observations of V838 Mon

Optical interferometry and Gaia measurement uncertainties reveal the physics of...

T Pyx AMBER observations

Numerical simulations and infrared spectro-interferometry reveal the wind colli...

The R CrB star V854 Cen

Infrared Interferometric Three-dimensional Diagnosis of the Atmospheric Dynamic...

The structure of disks around intermediate-mass young stars from mid-infrared i...

iot Peg

L3 - Published calibrated OIFITS / VizieR

VLTI observations of V4334 Sgr (Chesneau+, 2009)

Milli-arcsecond imaging of SS Lep (Blind+, 2011)

(epsilon) Aur visibility measurements (Mourard+, 2012)

Interferometry of (alpha) Eri (Domiciano de Souza+, 2012)

VLTI/MIDI AGN Large Program observations (Burtcher+, 2013)

The VLTI/MIDI survey of Massive YSOs (Boley+, 2013)

JMMC O<sub>2</sub>DB Home Search Submit new data Help

Filters

Object: Name or J2000 coordinates Radius: 2 arcmin Date of observation: after YYYY-MM-DD before YYYY-MM-DD

Instrument: Any Instrument Wavelength range: any value Data reduction level:  L0,  L1,  L2,  L3 Availability:  Public  Restricted  All

Collection: Any Collection DataPI: Any DataPI Program: program Id ObsId: ~MATIS.2019-07-11

25 rows max. per page, sorted by Date descending, with all columns

Search Reset

Results 5 records from 0 obs logs and 5 oifits files

Page 1 / 1

	target_name	access_url	t_min	instrument_name	wlen_min	wlen_max	nb_channels	datapi
3	kapTuc	2019-07-11T08:00:00 LM_LOW_IN...	2019-07-11T09:07:11	MATISSE	3.27923480	4.57017900	64	Florian Kirchschlager
3	kapTuc	2019-07-11T08:00:00 LM_LOW_OUT...		SE	3.27923480	4.57017900	64	Florian Kirchschlager
3	kapTuc	2019-07-11T08:00:00 LM_LOW_IN_I...		SE	3.27923480	4.57017900	64	Florian Kirchschlager
3	kapTuc	2019-07-11T08:00:00 LM_LOW_IN_I...		SE	3.27923480	4.57017900	64	Florian Kirchschlager
3	kapTuc	2019-07-11T08:00:00 LM_LOW_OUT...		SE	3.27923480	4.57017900	64	Florian Kirchschlager

Results for ADQL query

Provided metadata are an extension on top of the OIFITS data model

SELECT ALL FROM OIFITS WHERE INSTRUMENT = 'MATISSE' AND DATE\_OF\_OBSERVATION = '2019-07-11' ORDER BY t\_min DESC

Contact:  
 • Florian Kirchschlager (data creator)  
 • Florian Kirchschlager (data PI)  
 • Release date: 2019-07-11T09:05:30

## Add calibrated OIFITS files

Step 1 : Upload OIFITS files

Target	Instrument	Instrument mode	Time interval	Quality
+ Add files				

Step 2 : Choose collection

HD 163296 - Jozsef Varga

Step 3 : Save

## Add calibrated OIFITS files

Step 1 : Upload OIFITS files

Target	Instrument	Instrument mode	Time interval	Quality
+ Add files				

Step 2 : Choose collection

Collection details

Collection type

- public
- simulation
- SUV

Name

Title

Description

...

Keywords

Data PI

Step 3 : Save

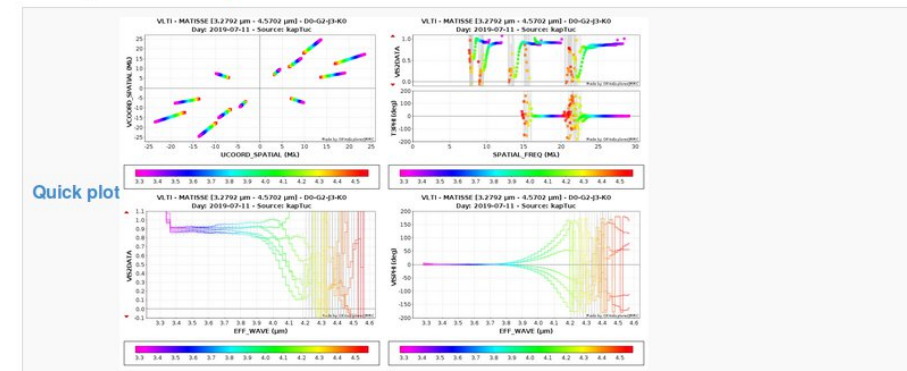
## Contact

Data PI / OBS creator  
Florian Kirchschrager

## Comments

+ Add the first comment

## Quicklook plots



## Contact

Data PI  
Not present in metadata  
OBS creator  
jmmc-tech-group - Bour

## Ancillary data

calib_level	id	obs_collection	datapi
0	1293809	ESO VLTI Import	<a href="#">✉</a>

## Comments

+ Add the first comment

## External resources

- [Details progid 0103.C-0725\(A\) on ESO archive](#)
- [Details progid 0103.C-0725\(A\) on JMMC ObsPortal](#)
- [Check or display content in OIFitsValidator](#)

## Ancillary

calib_level	id	obs_collection	datapi
3	1355457	Kappa Tuc	Florian Kirchschrager <a href="#">✉</a>
3	1355464	Kappa Tuc	Florian Kirchschrager <a href="#">✉</a>

## External resources

- [Details progid 0103.C-0725\(A\) on ESO archive](#)
- [Details progid 0103.C-0725\(A\) on JMMC ObsPortal](#)
- [Details exposure MATIS.2019-07-11T09:03:31.168\\_1 on JMMC ObsPortal](#)



# OiDB technical aspects

- Based on an hybrid database backend
  - XML + postgres RDBMS +TAP extension
  - datamodel extends IVOA/ObsCore
- Web & API submissions for OIFits V1& V2
- OIFits hosting & remote location support (CDS published )
- Handles authorization access for private data&datalinks
  - using permissions/ACLs on OiDB database storage
  - generating htaccess per collection on remote hosted locations
    - E.G. PIONIER L2 collection is hosted on a jmmc apache webserver. Embargoed data and associated quality plots are covered by the daily generated htaccess
- Validation process during OIFits local upload. Published data (L3) granted even if errors

IVOA/ObsCore  
DataModel:

oidb_datalink	
123	id
ABC	access_url
ABC	service_def
ABC	error_message
ABC	description
ABC	semantics
ABC	content_type
123	content_length
🕒	subdate

oidb	
123	id
ABC	datapduct_type
123	calib_level
ABC	target_name
ABC	obs_id
ABC	obs_collection
ABC	obs_creator_name
🕒	obs_release_date
ABC	obs_publisher_did
ABC	bib_reference
ABC	data_rights
ABC	access_url
ABC	access_format
123	access_estsize
123	s_ra
123	s_dec
123	s_fov
123	s_region
123	s_resolution
123	t_min
123	t_max
123	t_exptime
123	t_resolution
123	em_min
123	em_max
123	em_res_power
ABC	o_ugd
ABC	pol_states
ABC	facility_name
ABC	instrument_name
ABC	instrument_mode
123	quality_level
123	nb_channels
123	nb_vis
123	nb_vis2
123	nb_t3
ABC	keywords
🕒	subdate
ABC	progid
ABC	datapi
ABC	access_md5
ABC	interferometer_stations

# OiDB TODO

- Enable dataPI to share private data to other cols, groups...
- Gather OiDB records in a new common JMMC TAP service
  - would facilitate JMMC's catalogs crossmatch / advanced queries
- Enhance search interface (facets) and update process (fix some descriptive parts, link data...)
- Provide DOIs ? per granule, per collection ?
- Register OiDB in the VO-registry





# ObsPortal

Get past observations into ASPRO2



# Obs logs

ASPRO2 performs ObsPortal cone-search queries for each target (VOTable).

Why not query ESO archive directly ?

To parse FITS header keywords => target, instrument mode, UV points (get header is very slow)

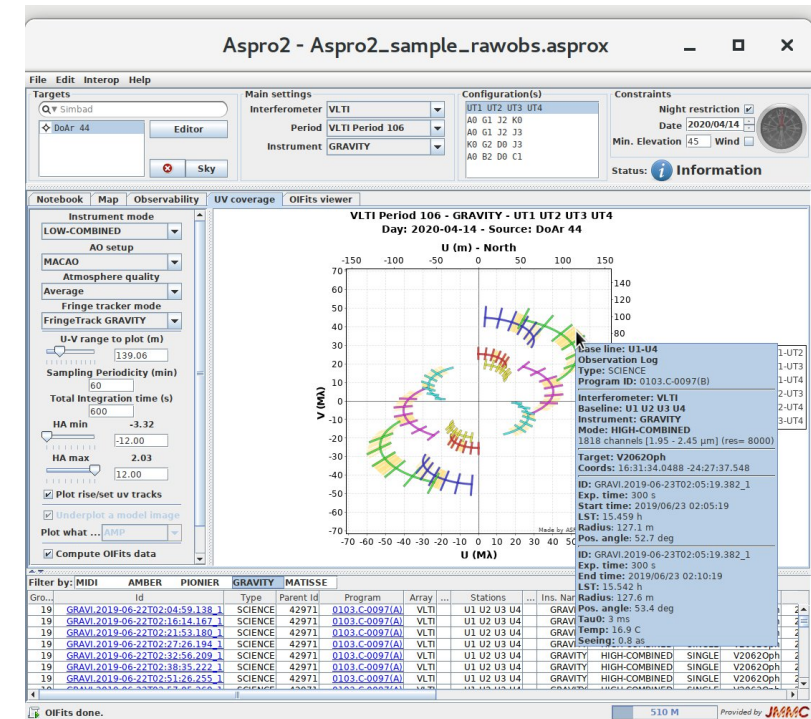
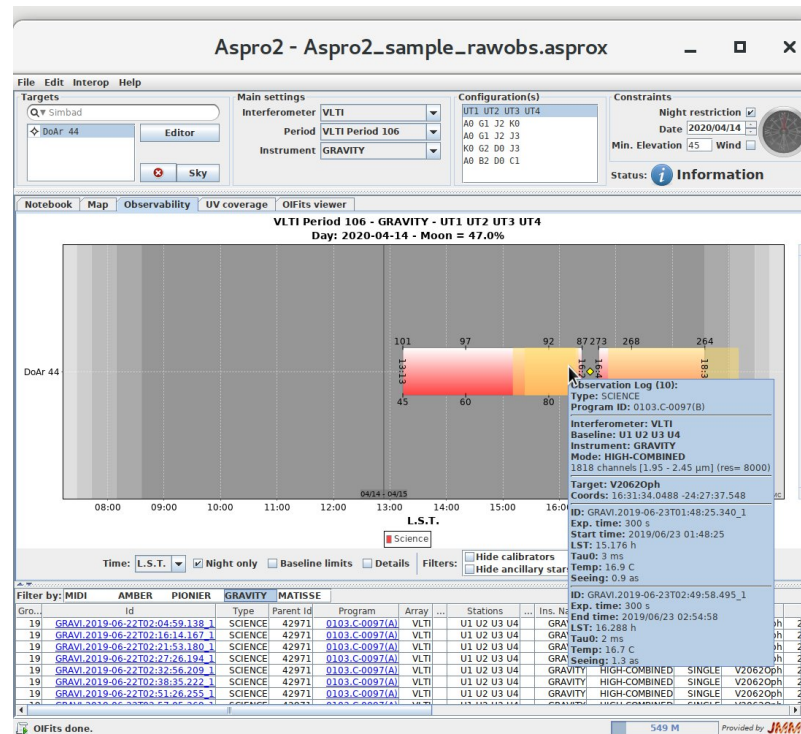
*Problem: target identification is fuzzy (varying RA / DEC in FITS headers for the same target, like alf cma)*

Get latest obs logs from obs portal

- Show table + details in tooltips
- Filter obs logs by instrument (more filters to come)

Show UV tracks of (filtered) obs logs

Note: each ESO OB gives projected baseline (radius + pa) + mjd times



# JMMC Obs Portal

<http://obs.jmmc.fr/>

(Python / postgresql web app)

*Blue / Green (k8s + docker) deployments !*

<https://gricad-gitlab.univ-grenoble-alpes.fr/OSUG/JMMC/jmmc-obsportal>

<https://gricad-gitlab.univ-grenoble-alpes.fr/OSUG/JMMC/jmmc-obsportal-kubernetes>

- Observation Logs from VLTI
  - all instruments
  - ESO sync every hour (TAP + get header)
- OiDB sync => L0 ESO
- Future:
  - Ingest CHARA / SPICA observation logs
  - provide TAP interface
  - Better target identification by position ?

## ObsPortal

The **JMMC** ObsPortal service provides both a web interface and a cone-search service (TAP in the future) on its database containing raw optical interferometry observations (L0):

- **ESO archive** provides VLTI observations (observing blocks & exposures). Supported instruments are MIDI, AMBER, PIONIER, GRAVITY, MATISSE.

The **JMMC** also provides the **OiDB** service that contains published & science-ready datasets (L2, L3) in the OIFITS file format.

Please contact the **JMMC user support** for any remark or issue on this service.

## Change log

- 2020.05.05: Release 20.05:
  - Automatic synchronization (ESO TAP)
  - Added UV points per baseline and atmospheric conditions
  - Improved performance: indexes + rewritten VOTable writer
  - Improved header validation
- 2020.02.25: First release, integrated in ASPRO2 20.03

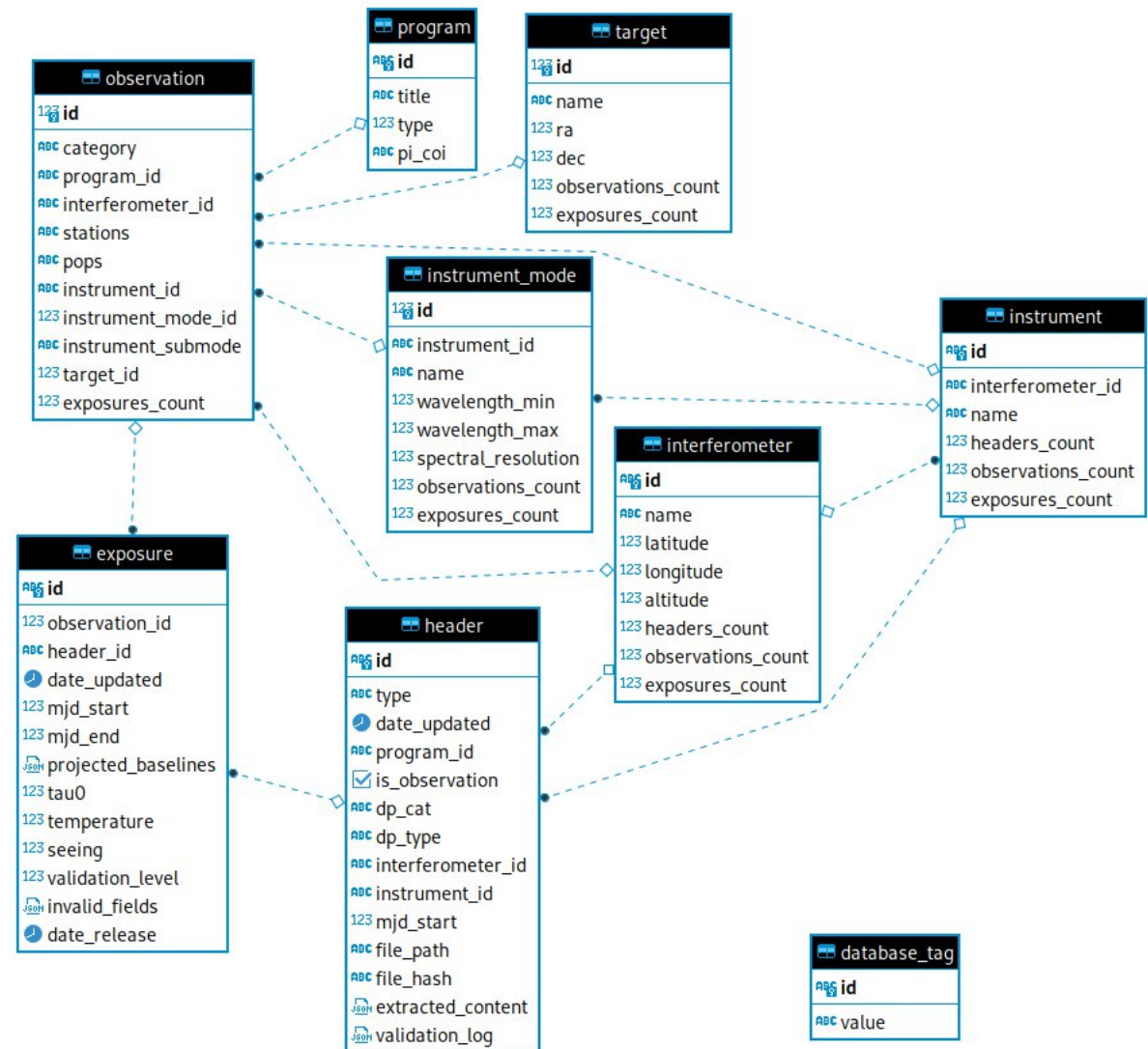
## Database statistics

Header count	1035757
Target count	35277
Observation count	47263
Exposure count	342284
Valid exposure count	336192 (98.22%)
Exposure Date min	2003-06-14 07:13:36.000
Exposure Date max	2021-03-23 08:57:49.326
<b>Header last ModificationDate</b>	<b>2021-03-23 09:01:38 UTC+0000</b>



# ObsPortal data model

- Observation (exposure)
- Target (position only)
- Array / Instrument / observing mode
- MJD / obs timestamps
- Weather conditions
- Missing: ESO OB grading / other quality flags







JMDC / BadCal

# JMDC

Catalog of measured stellar diameters by interferometry or lunar occultation observing techniques

- Allows method calibration (fit) to estimate stellar diameters from photometry (SearchCal / JSDC)
- New web interface to submit new diameter measurements with validation : <http://jmdc.jmmc.fr/>
- Publication JMDC v4 @ CDS : [Vizier II/345](https://vizier.cds.u-strasbourg.fr/vizier/VIZIER/II/345)
  - 28-Nov-2016: First version with 1239 measurements
  - 29-Mar-2018: New version with 1478 measurements
  - 16-Jan-2019: New version with 1554 measurements
  - 07-Feb-2020: New version with 1672 measurements
- Caution: some target entries (e.g. close binaries) are unresolved by SIMBAD (bad identifiers)

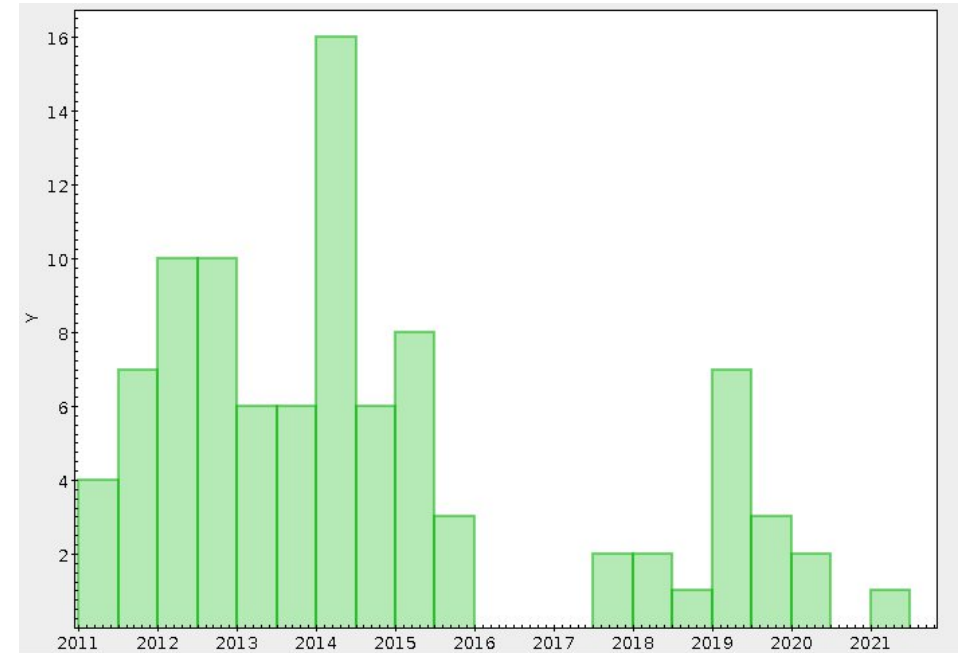
CATALOG SUBMIT MODERATE DOC ABOUT												
Copy	CSV	Excel	PDF	Print	Show 10 rows							
ID1	ID2	UD_DIAM	LD_DIAM	E_LD_DIAM	BAND	MU_LAMBDA	METHOD	BANDCODE	NOTES	BIBCODE		
2MASS J17454004-2900225	GC IRS 7	1.076	1.116	0.093	K		1	8	Id coeff from 2000A&A...363.1081C	2014A&A...568A..85P		
2MASS J18150712-0018523	FG Ser	0.83	-1.0	0.03	H		1	7	SB1 binary, secondary not resolved, fills roche lobe = non-spherical	2014A&A...564A...1B		
2MASS J18150712-0018523	FG Ser	0.94	-1.0	0.05	H		1	7	SB1 binary, secondary not resolved, fills roche lobe = non-spherical	2014A&A...564A...1B		
2MASS J20424649+0841135	ER Del	0.61	-1.0	0.04	H		1	7	SB1 binary, secondary not resolved	2014A&A...564A...1B		



# BadCal

<http://www.jmmc.fr/badcal/>

- Exposes 140 bad calibrators on 2021
- Online since 2010
  - 50 first extracted from the IAU Bad Calibrator Registry
- Low registration rate :(
  - Relies on individuals comments
  - => Could it be facility driven ?
  - => Are all ESO's badcal registered ?



## Current datamodel:

- coords,name, obs\_date
- interferometer, insname, baseline, wavelength,
- user\_name, user\_affiliation, user\_comment
- sub\_date

# Questions ?